

# Work Order ID 89685

**\*89685\***

Page 1

August-30-12 11:35:20 AM

Item ID: D3272-1

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Step

Start Date: 8/30/12 Start Qty: 5.00

**\*5\***

Cust Item ID:

Required Date: 9/14/12 Req'd Qty: 5.00

**\*5\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr | Revision Nbr |
|----------|--------------|
| D3272    | Rev B        |

100

0.00

**\*100\***

Large Fab

Large Fab

Memo

0.00

Large Fab

\*\*\*SQUARE ONE END BEFORE CUTTING OTHER END\*\*\*

1-Cut D2622-120 extrusion to 116.25" long as per Dwg D3272 using cutting table setup DT 8185-2A

2-Drill extrusion as per Dwg D3272 using Jig DT8680 for rivets.

3-Deburr

5  $\phi$  12.09.18

110

QC6- Inspect dimensions to drawing

0.00

**\*110\***

QC

Memo

0.00

Quality Control

DAS  
24  
12.9.18

5x 

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|   |      |      |   |   |                   |   |             |              |   |  |  |
|---|------|------|---|---|-------------------|---|-------------|--------------|---|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____  |      |      |   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                   | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |             |              |   |  |  |
| Root Cause  | Date | Step | Qty   | Description of work order update or Non-conformance   | Initial Chief Eng | Action Description  | Sign & Date | Verification | QC Inspector  |  |  |
| Doc/Data <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| Equip/Tooling <input type="checkbox"/>  |      |      |   |   |                   |   |             |              |   |  |  |
| Operator <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| Material <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| Setup <input type="checkbox"/>  |      |      |   |   |                   |   |             |              |   |  |  |
| Other <input type="checkbox"/>  |      |      |   |   |                   |   |             |              |   |  |  |
| Process <input type="checkbox"/>  |      |      |   |   |                   |   |             |              |   |  |  |
| Supplier <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| Training <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| Unapproved <input type="checkbox"/>   |      |      |   |   |                   |   |             |              |   |  |  |
| <b>FAULT CATEGORY</b>   |      |      |   |   |                   |   |             |              |   |  |  |
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |      |      | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |   |                   | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions   |             |              | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge<br><br><input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><br><input type="checkbox"/> Other |  |  |

**Work Order ID 89685**

August-30-12 11:35:20 AM

**\*89685\***

Page 2

Item ID: D3272-1

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Step

Start Date: 8/30/12

Start Qty: 5.00

**\*5\***

Cust Item ID:

Required Date: 9/14/12

Req'd Qty: 5.00

**\*5\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

120

Identify as per dwg & Stock Location: *WMA*

0.00

**\*120\***

Packaging

Memo

0.00

Packaging

*105* *9* *12.09.18*

130

QC21- Final Inspection - Work Order Release

0.00

**\*130\***

QC

Memo

0.00

Quality Control

*12/19/19* *MF* *12-09-18*

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
|---|-------------|-------------|---|---|--------------------------|---|------------------------|---------------------|---|--|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____  |             |             |   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                          | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                        |                     |   |  |  |  |
| <b>Root Cause</b>   | <b>Date</b> | <b>Step</b> | <b>Qty</b>  | <b>Description of work order update or Non-conformance</b>  | <b>Initial Chief Eng</b> | <b>Action Description</b>   | <b>Sign &amp; Date</b> | <b>Verification</b> | <b>QC Inspector</b>   |  |  |  |
| Doc/Data  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Equip/Tooling   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Operator  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Material  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Setup   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Other   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Process   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Supplier  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Training  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Unapproved  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| <b>FAULT CATEGORY</b>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |             |             | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |   |                          | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions   |                        |                     | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge<br><br>_____<br>_____<br>_____ |  | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><br><input type="checkbox"/> Other<br><br>_____<br>_____<br>_____ |  |

# Picklist Print

August-30-12 11:35:20 AM

Page 1

Work Order ID: 89685

Parent Item: D3272-1

Parent Item Name: Step

Start Date: 8/30/12

Required Date: 9/14/12

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP Rev:A New Issue 07-06-09 JLM

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|

D2622-120C

Manufactured

No

100

Each

48.7900

1

Step Extrusion

B88<sup>5</sup>513 (x5) A2 12-09-18

Location

Loc Qty

Loc Code

HALL

16.37

46910

2

64409

6

66970

7.7

68293

0.25

72131

0.42

WA

23.06

81507

2.88

83894

20.18

WA013

9.36

75781

2

77612

7.36

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
|---|-------------|-------------|---|---|--------------------------|---|------------------------|---------------------|--|--|---|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____  |             |             |   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                          | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                        |                     |  |  |   |  |
| <b>Root Cause</b>   | <b>Date</b> | <b>Step</b> | <b>Qty</b>  | <b>Description of work order update or Non-conformance</b>  | <b>Initial Chief Eng</b> | <b>Action Description</b>   | <b>Sign &amp; Date</b> | <b>Verification</b> | <b>QC Inspector</b>  |  |   |  |
| Doc/Data <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Equip/Tooling <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Operator <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Material <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Setup <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Other <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Process <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Supplier <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Training <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| Unapproved <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| <b>FAULT CATEGORY</b>   |             |             |   |   |                          |   |                        |                     |  |  |   |  |
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |             |             | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |   |                          | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions   |                        |                     | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge |  | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |  |



|                      |                      |  |                        |
|----------------------|----------------------|--|------------------------|
| DESIGN<br><i>GP</i>  | DRAWN BY<br><i>B</i> | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>LE</i> | APPROVED<br><i>H</i> | DRAWING NO.<br>D3272                                     | REV. B<br>SHEET 1 OF 3 |
| DATE<br>07.05.18     |                      | TITLE<br>STEP ASSEMBLY, HI LONG                          | SCALE<br>NTS           |
| A                    | 04.03.01             | NEW ISSUE  |                        |
| B                    | 07.05.18             | D3272-1 WAS D2622-120                                    |                        |

**RELEASED**

07.06.04 *H*

| QTY<br>-041 | QTY<br>-042 | PART NUMBER  | DESCRIPTION                   |
|-------------|-------------|--------------|-------------------------------|
| X           |             | D3272-041    | STEP ASSEMBLY, HIGH LONG (LH) |
|             | X           | D3272-042    | STEP ASSEMBLY, HIGH LONG (RH) |
|             |             |              |                               |
| 1           | 1           | D3065-041    | LEG ASSEMBLY                  |
| 2           | 2           | D3066-1      | SPACER                        |
| 2           | 2           | D3067-1      | END PLATE                     |
| 2           | 2           | D3219-1      | SUPPORT                       |
| 1           | 1           | D3272-1      | STEP                          |
|             |             |              |                               |
| 16          | 16          | MS20600AD4W4 | RIVET                         |
|             |             |              |                               |

**GENERAL NOTES:**

- 1) D3272-041 SHOWN. FOR D3272-042, INSTALL D3219-1 SUPPORT OPPOSITE SIDE
- 2) WELD PER DART QSI 004
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005.4.1  
POWDER COAT ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 5) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX.

*WLB 89685*

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NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

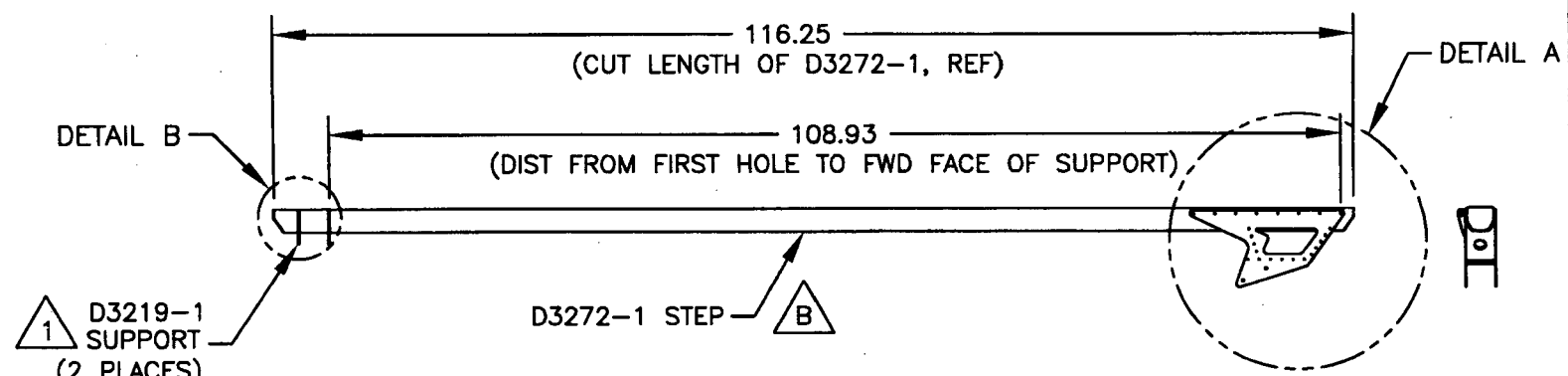
QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
|---|-------------|-------------|---|---|--------------------------|---|------------------------|---------------------|---|--|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____  |             |             |   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                          | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                        |                     |   |  |  |  |
| <b>Root Cause</b>   | <b>Date</b> | <b>Step</b> | <b>Qty</b>  | <b>Description of work order update or Non-conformance</b>  | <b>Initial Chief Eng</b> | <b>Action Description</b>   | <b>Sign &amp; Date</b> | <b>Verification</b> | <b>QC Inspector</b>   |  |  |  |
| Doc/Data <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Equip/Tooling <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Operator <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Material <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Setup <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Other <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Process <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Supplier <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Training <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| Unapproved <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| <b>FAULT CATEGORY</b>   |             |             |   |   |                          |   |                        |                     |   |  |  |  |
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |             |             | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |   |                          | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions   |                        |                     | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge<br><br><hr/> <hr/> <hr/> |  | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><br><input type="checkbox"/> Other<br><br><hr/> <hr/> <hr/> |  |

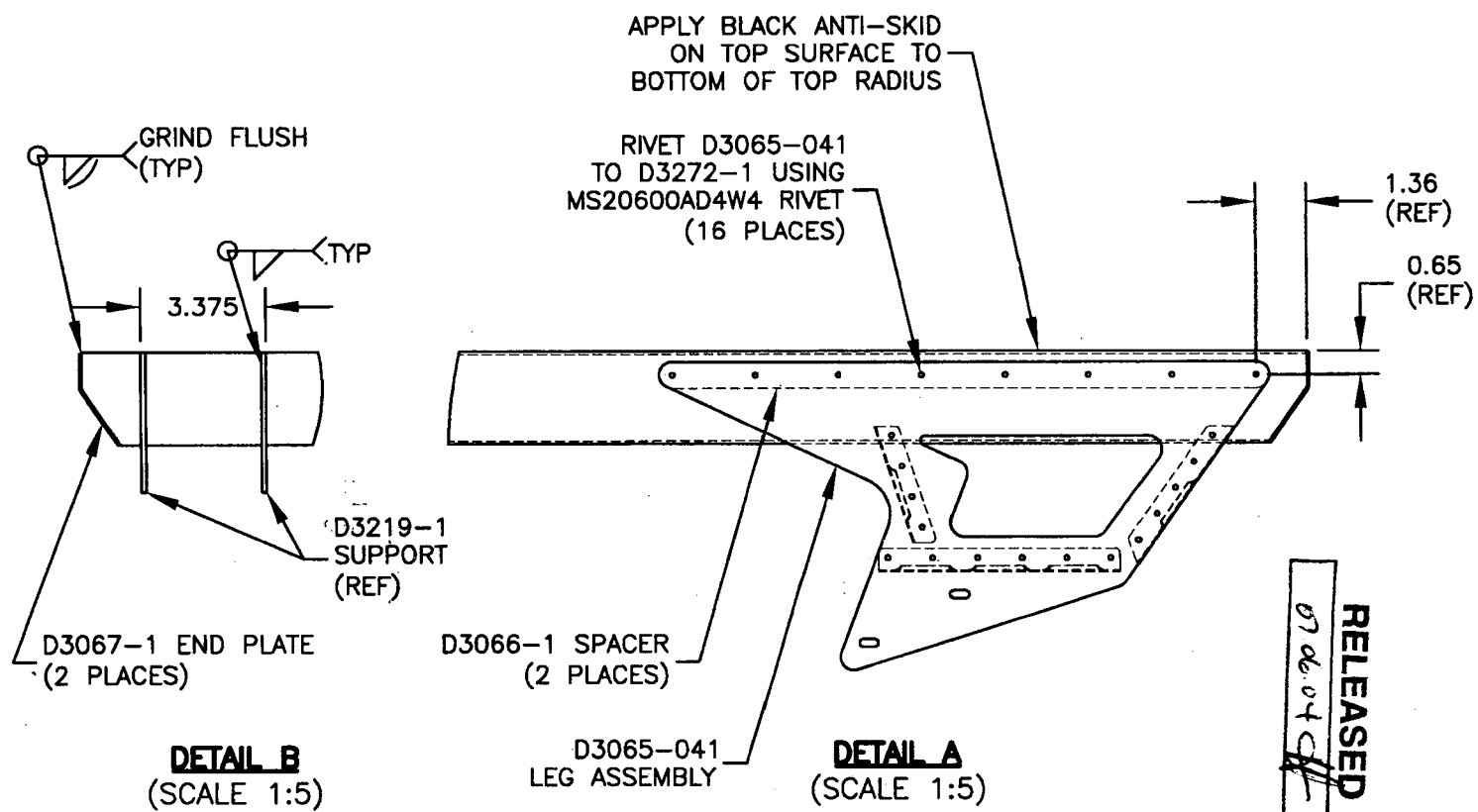




|         |          |          |                        |                             |
|---------|----------|----------|------------------------|-----------------------------|
| DESIGN  | q        | DRAWN BY | J                      | DART AEROSPACE LTD          |
| CHECKED | CE       | APPROVED |                        | HAWKESBURY, ONTARIO, CANADA |
| DATE    | 07.05.18 | TITLE    | STEP ASSEMBLY, HI LONG | REV. B                      |
|         |          |          |                        | SHEET 2 OF 3                |
|         |          |          |                        | SCALE 1:20                  |



**D3272-041 STEP ASSEMBLY (LH. SHOWN)**  
D3272-042 STEP ASSEMBLY (RH, OPPOSITE)



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NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|  |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
|--|-------------|-------------|------------|---|--------------------------|-----------------------------------|------------------------|---------------------|---------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |             |             |            | <b>DISPOSITION</b><br><br><div style="display: flex; justify-content: space-around;"> <span>Rework <input type="checkbox"/></span> <span>Skid-tube <input type="checkbox"/></span> <span>Crosstube <input type="checkbox"/></span> <span>Water Jet <input type="checkbox"/></span> <span>Engineering <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-around;"> <span>Scrap <input type="checkbox"/></span> <span>Machining <input type="checkbox"/></span> <span>Small Fab <input type="checkbox"/></span> <span>Prod. Eng. Coord. <input type="checkbox"/></span> <span>Quality <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-around;"> <span>Use-as-is <input type="checkbox"/></span> <span>Thermoforming <input type="checkbox"/></span> <span>Finishing <input type="checkbox"/></span> <span>Rec/Store/Packaging <input type="checkbox"/></span> <span>Other <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-around;"> <span>Work Order Update <input type="checkbox"/></span> <span>Large Fab <input type="checkbox"/></span> <span>Composite <input type="checkbox"/></span> <span>Supplier <input type="checkbox"/></span> </div> |                          | <b>AGAINST DEPARTMENT/PROCESS</b> |                        |                     |                     |  |  |
| <b>Root Cause</b>  | <b>Date</b> | <b>Step</b> | <b>Qty</b> | <b>Description of work order update or Non-conformance</b>  | <b>Initial Chief Eng</b> | <b>Action Description</b>         | <b>Sign &amp; Date</b> | <b>Verification</b> | <b>QC Inspector</b> |  |  |
| Doc/Data <input type="checkbox"/>                            |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Equip/Tooling <input type="checkbox"/>                       |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Operator <input type="checkbox"/>                            |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Material <input type="checkbox"/>                            |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Setup <input type="checkbox"/>                               |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Other <input type="checkbox"/>                               |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Process <input type="checkbox"/>                             |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Supplier <input type="checkbox"/>                            |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Training <input type="checkbox"/>                            |             |             |            |   |                          |                                   |                        |                     |                     |  |  |
| Unapproved <input type="checkbox"/>                          |             |             |            |   |                          |                                   |                        |                     |                     |  |  |

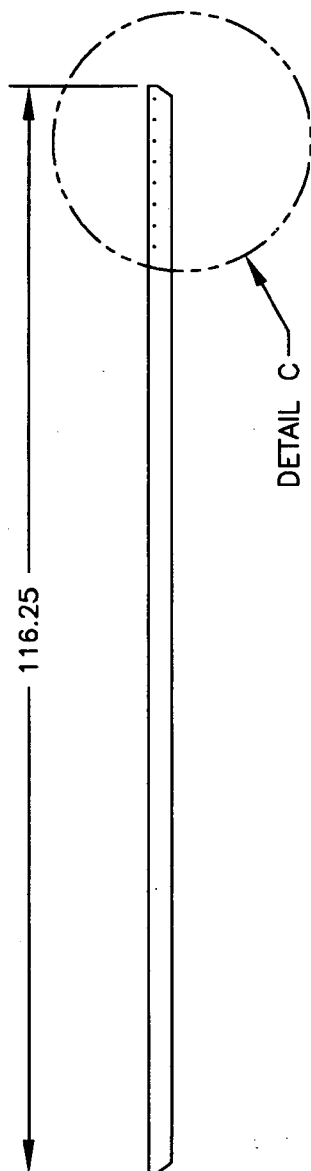
| FAULT CATEGORY   |  |  |   |  |  |   |  |  |  |  |   |  |
|--|--|--|---|--|--|---|--|--|--|--|---|--|
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped.<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |  |  | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |  |  | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions |  |  | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge |  | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |  |



|                      |                                |   |                        |
|----------------------|--------------------------------|---|------------------------|
| DESIGN<br><i>GP</i>  | DRAWN BY<br><i>[Signature]</i> | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>LE</i> | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br>D3272                              | REV. B<br>SHEET 3 OF 3 |
| DATE<br>07.05.18     |                                | TITLE<br>STEP ASSEMBLY, HI LONG                   | SCALE<br>1:20          |

RELEASED

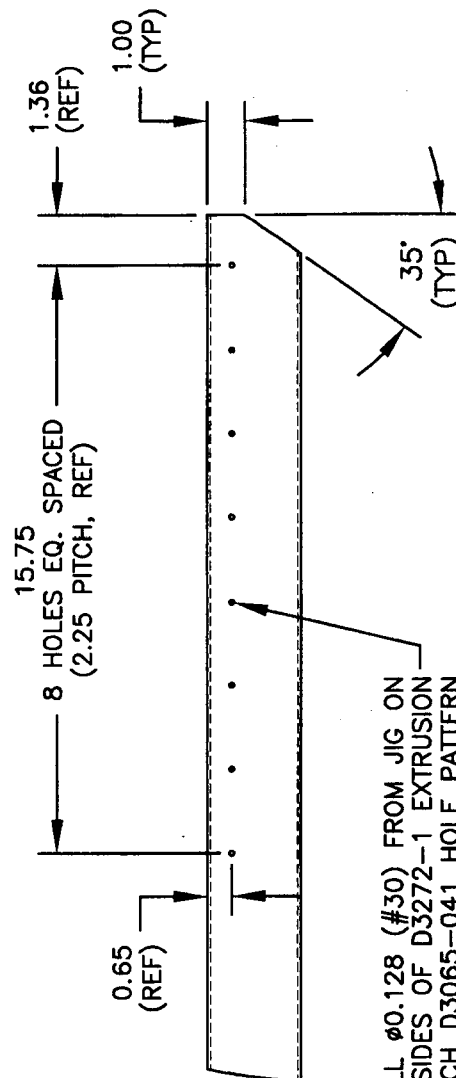
07.06.04 *[Signature]*



DETAIL C

**B D3272-1 STEP**

(MAKE FROM D2622-120 STEP EXTRUSION)



DRILL  $\phi 0.128$  (#30) FROM JIG ON  
BOTH SIDES OF D3272-1 EXTRUSION  
TO MATCH D3065-041 HOLE PATTERN

**DETAIL C**  
(SCALE 1:5)

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NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|  |      |      |     |   |                   |   |             |              |              |  |  |
|--|------|------|-----|---|-------------------|---|-------------|--------------|--------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |      |      |     | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                   | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |             |              |              |  |  |
| <b>Root Cause</b>  | Date | Step | Qty | Description of work order update or Non-conformance   | Initial Chief Eng | Action Description  | Sign & Date | Verification | QC Inspector |  |  |
| Doc/Data <input type="checkbox"/>                            |      |      |     |   |                   |   |             |              |              |  |  |
| Equip/Tooling <input type="checkbox"/>                       |      |      |     |   |                   |   |             |              |              |  |  |
| Operator <input type="checkbox"/>                            |      |      |     |   |                   |   |             |              |              |  |  |
| Material <input type="checkbox"/>                            |      |      |     |   |                   |   |             |              |              |  |  |
| Setup <input type="checkbox"/>                               |      |      |     |   |                   |   |             |              |              |  |  |
| Other <input type="checkbox"/>                               |      |      |     |   |                   |   |             |              |              |  |  |
| Process <input type="checkbox"/>                             |      |      |     |   |                   |   |             |              |              |  |  |
| Supplier <input type="checkbox"/>                            |      |      |     |   |                   |   |             |              |              |  |  |
| Training <input type="checkbox"/>                            |      |      |     |   |                   |   |             |              |              |  |  |
| Unapproved <input type="checkbox"/>                          |      |      |     |   |                   |   |             |              |              |  |  |

| FAULT CATEGORY  |   |   |  |   |
|---|---|---|--|---|
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |